DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Siegenthaler, Peter
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-024246
Date Inspected: 02-Jun-2011

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1930
Location: Job Site

CWI Name: Steve Jensen and Pat Swain

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: SAS Tower

Summary of Items Observed:

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower South Shaft Splice #3 @Elevation 114 meters:

At Southwest (B-C) corner, lower splice plate; This QA Inspector randomly observed ABF welding personnel Salvador Sandoval continuing to perform production welding on the bottom half of the lower splice plate using the self shielded Flux Cored Arc Welding (FCAW) process with 1.8mm diameter E71T-8 wire electrode implementing Caltrans approved (WPS) ABF-WPS-D15-F2200-3. The welder was noted 3F (vertical) fillet welding of the splice plate to interior corner closure plate of the tower shaft. This QA Inspector observed ABF personnel using a propylene gas torch to preheat the plates to be welded prior to welding. This QA Inspector observed QC Inspector Steve Jensen using a Fluke infra red temperature gauge to verify the preheat temperature of more than 300°F. This QA Inspector performed a verification of the 3F welding parameters and observed 265 amperes and 22.0 volts with travel speed of 90mm per minute with equivalent heat input of 3.8 Kj per mm. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F2200-3. At the end of the shift, vertical fillet welding was still continuing and should continue thru tomorrow. ABF personnel were noted covering the weld with heater blankets in preparation for the three hours of postheat temperature at a minimum of 300°F as required. ABF personnel were using Miller Proheat 35 Induction Heating System to hold the preheat that was programmed to shut off after three hours.

At Tower East Shaft Splice #1 @Elevation 50.3meters:

At Southeast (C-D) corner, upper splice plate; This QA Inspector randomly observed ABF welding personnel Mike Jimenez continuing to perform production welding on the top half of the upper splice plate using the Shielded Metal Arc Welding (SMAW) with 1/8" diameter E7018H4R electrode implementing Caltrans approved (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using a propylene gas torch to preheat the plates to be welded prior to welding. This QA Inspector observed QC Inspector Steve Jensen using a Fluke infra red temperature gauge to verify the preheat temperature of more than 225°F. This QA Inspector performed a verification of the welding parameters and observed 120 amperes. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. Prior welding, ABF QC Steve Jensen had asked this QA to perform VT on the upper and lower splice plates. QA obliged the QC request and performed the VT inspection. During VT, the lower splice plate fillet welds were looked at and deemed acceptable, however, the upper splice plate was noted to have underfill at the top and unacceptable surface profile on the sides. This was relayed to QC which he informed the welder to fix. During the shift, this QA and fellow QA Craig Hager swapped places.QA Craig Hager continued monitoring the welding of the upper splice plate while this QA went to the Tower base and observed the Electro Slag Welding of the S-044 shear plate butt joint.

At Tower West Shaft Splice #3 @Elevation 114 meters:

The Tower West Shaft at splice #3 there was no welding today. ABF welder Richard Garcia was called on to assist in the preparation and welding of the Electro Slag Welding (ESW) of the S-044 shear plate butt joint at Tower base.

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT of the fillet welding of one (1) splice plate. The QA verification was performed to verify the welding and the VT inspection performed by the QC inspector met the requirements of the contract documents. At the conclusion of the QA verification it appeared the weld and the QC inspection complied with the contract documents.
Tower East Shaft Elev. 50.3meters Southeast (C-D) corner lower splice – QA VT verified

At Tower Base Elevation 13Meters Shear Plate Electro Slag Welding (ESW);

At approximately 1240 hours, this QA was present at the Tower Base to observe the Electro Slag Welding of the weld number S-044 located at 'C' position per ABF weld map. The weld joint to be welded is a 60-70mm transition butt joint located at the corner of tower skin plates 'A' and 'E' and to implement Caltrans approved welding procedure ABF-WPS-ESW-60-70TR.

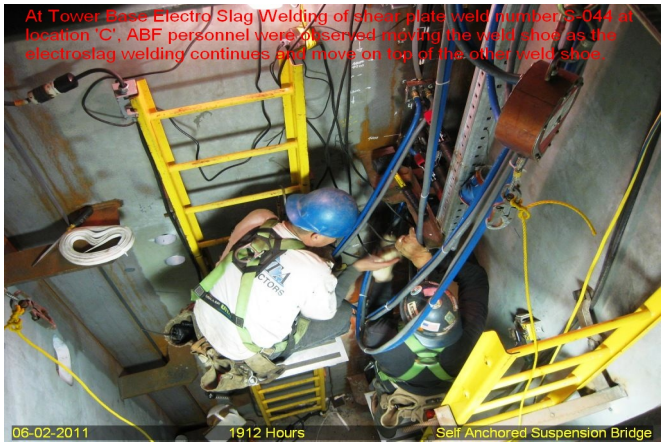
Upon QA's arrival, ABF personnel were noted preparing to weld the shear plate butt joint by checking all the necessary electrical and water hose weld shoe cooling connections. They were all in place prior to commencing of the ESW. It was noted that three weld shoes were in position at each opposing side of the joint and so was the consumable guide tube that was placed in between the joint gap.

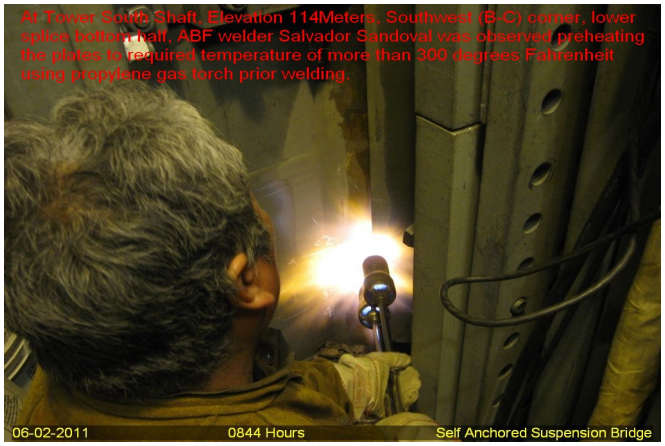
Initial welding of the ESW had started at 1518 hours. There were probl;ems with the inital start of the welding do to bad electrical continuity according to ABF QCM Mr. Jim Bowers. ABF Superintendent Dan Ieraci and other personnel checked and re-checked again all connections until they finally were satisfied and re-started at around

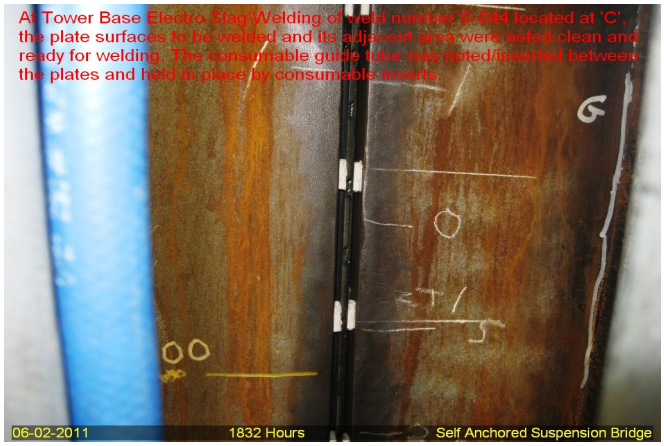
WELDING INSPECTION REPORT

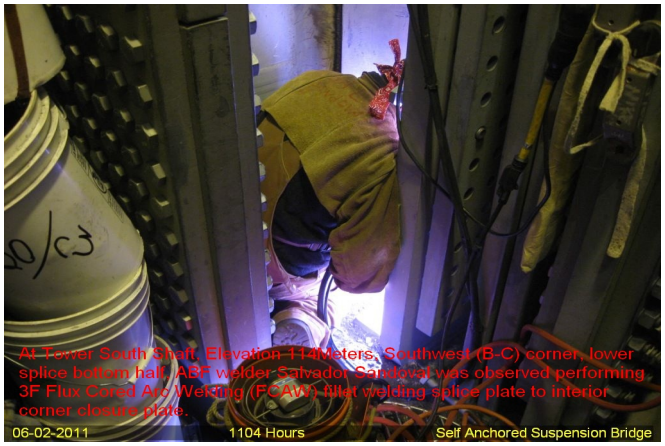
(Continued Page 3 of 3)

1712 hours. This time the re-starting of the ESW was successful and the welding parameters have stabilized. Welding continued until the completion of the joint.









Summary of Conversations:

No significant conversation ocurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer